STRUCTURE SEARCH

```
=> d his 152

     (FILE 'HCAPLUS' ENTERED AT 11:24:56 ON 06 AUG 2008)
L52           13 S L49 OR L51
                 SAV TEMP L52 WEI268HCP/A

=> d que 152
L2            27 SEA FILE=REGISTRY ABB=ON  PLU=ON  (463-79-6/BI OR
                 1001-55-4/BI OR 105-58-8/BI OR 108-32-7/BI OR 110-67-8/
                 BI OR 12031-65-1/BI OR 12057-17-9/BI OR 12190-79-3/BI
                 OR 14283-07-9/BI OR 15365-14-7/BI OR 1656-48-0/BI OR
                 1738-36-9/BI OR 18804-04-1/BI OR 21324-40-3/BI OR
                 2141-62-0/BI OR 260362-83-2/BI OR 29935-35-1/BI OR
                 311346-25-5/BI OR 56756-91-3/BI OR 616-38-6/BI OR
                 623-53-0/BI OR 62957-60-2/BI OR 7782-42-5/BI OR
                 7791-03-9/BI OR 852995-04-1/BI OR 90076-65-6/BI OR
                 96-49-1/BI)
L4             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  14283-07-9/RN
L5             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  21324-40-3/RN
L6             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  29935-35-1/RN
L7             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  CL4LI/MF
L12            8 SEA FILE=REGISTRY ABB=ON  PLU=ON  L2 AND ?NITRILE?/CNS

L13            6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L2 AND ?CARBONAT?/CNS

L16              STR
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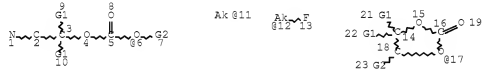


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VAR G1=H/11/12
VAR G2=11/12
VAR G3=6/17
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT  IS M1-X3 C  AT  11
ECOUNT  IS M1-X3 C  AT  12

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS  23

STEREO ATTRIBUTES: NONE
L20              SCR 1918 OR 2043 OR 1839 OR 1946 OR 1994 OR 2008 OR 2026
 OR 2021 OR 2016
L22           632 SEA FILE=REGISTRY SSS FUL L16 NOT L20
L24             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  C2 H F6 N O4 S2 .
                  LI/MF
L25             9 SEA FILE=REGISTRY ABB=ON  PLU=ON  ?LITHIUM?/CNS AND
                  ?PERFLUORO?/CNS AND ?SULFONATE?/CNS
L26            14 SEA FILE=REGISTRY ABB=ON  PLU=ON  L24 OR L25 OR (L4 OR
                  L5 OR L6 OR L7)
L27           486 SEA FILE=REGISTRY ABB=ON  PLU=ON  L22 AND 1/NR
L29               STR
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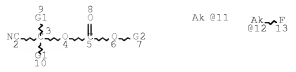

VAR G1=H/11/12
VAR G2=11/12
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS M1-X3 C AT 11
ECOUNT IS M1-X3 C AT 12

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE

L31	110	SEA FILE=REGISTRY SUB=L22 SSS FUL L29	
L32	61	SEA FILE=REGISTRY ABB=ON PLU=ON	L31 NOT 1-9/NR
L33	10769	SEA FILE=HCAPLUS ABB=ON PLU=ON	L26
L34	53	SEA FILE=HCAPLUS ABB=ON PLU=ON	L32
L35	1	SEA FILE=HCAPLUS ABB=ON PLU=ON	L33 AND L34
L36	13366	SEA FILE=HCAPLUS ABB=ON PLU=ON	L27
L37	3038	SEA FILE=HCAPLUS ABB=ON PLU=ON	L33 AND L36
L38	1	SEA FILE=HCAPLUS ABB=ON PLU=ON	L37 AND L34
L39	24100	SEA FILE=HCAPLUS ABB=ON PLU=ON	L13
L40	5994	SEA FILE=HCAPLUS ABB=ON PLU=ON	L33 AND L39
L41	1243	SEA FILE=HCAPLUS ABB=ON PLU=ON	L12
L42	13	SEA FILE=HCAPLUS ABB=ON PLU=ON	L40 AND L41
L43	2	SEA FILE=REGISTRY ABB=ON PLU=ON	L2 AND ?DIOXOLAN?/CNS
L44	18380	SEA FILE=HCAPLUS ABB=ON PLU=ON	L43
L45	5828	SEA FILE=HCAPLUS ABB=ON PLU=ON	L33 AND L44
L46	13	SEA FILE=HCAPLUS ABB=ON PLU=ON	L45 AND (L34 OR L41 OR L32)
L47	13	SEA FILE=HCAPLUS ABB=ON PLU=ON	L35 OR L38 OR L42 OR L46
L48		QUE ABB=ON PLU=ON	ELECTROLYT?
L49	13	SEA FILE=HCAPLUS ABB=ON PLU=ON	L47 AND L48
L50		QUE ABB=ON PLU=ON	BATTER?
L51	12	SEA FILE=HCAPLUS ABB=ON PLU=ON	L49 AND L50
L52	13	SEA FILE=HCAPLUS ABB=ON PLU=ON	L49 OR L51

STRUCTURE SEARCH RESULTS

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=> d l52 1-13 ibib ed abs hitstr hitind
T
L52  ANSWER 1 OF 13  HCAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2007:1025526  HCAPLUS  Full-text
DOCUMENT NUMBER:          147:368494
TITLE:                    Electrolyte for use in an energy
                          storage device
INVENTOR(S):              Aitchison, Phillip Brett; Nguyen, Hung Chi
PATENT ASSIGNEE(S):       Cap-XX Limited, Australia
SOURCE:                   PCT Int. Appl., 32pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ----------------    ----   --------    -------------------
     --------
     WO 2007101303        A1    20070913    WO 2007-AU284
                                                                   2007
                                                                   0307
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,
             CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,
             ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN,
             IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS,
             LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
             NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE,
             SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
             US, UZ, VC, VN, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,
             HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE,
             SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
             MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD,
             SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
PRIORITY APPLN. INFO.:                      AU 2006-901174      A
                                                                   2006
                                                                   0308

ED   Entered STN:  13 Sep 2007
AB   Electrolyte for use in an energy storage device such as a capacitor or supercapacitor
     which comprises a solvent (preferably propionitrile) and an ionic species (preferably
     methyltriethylammonium tetrafluoroborate).  The electrolytes provide a low ESR rise
     rate, a high voltage and permit operation over a wide range of temps., which makes them
     beneficial for use in a range of energy storage devices such as digital wireless
     devices, wireless LAN devices, mobile telephones, computers, elec. or hybrid elec.
     vehicles.
IT   96-49-1, Ethylene carbonate 105-58-8, Diethyl
     carbonate 108-32-7, Propylene carbonate 110-67-8
     , 3-Methoxypropionitrile 616-38-6, Dimethyl carbonate
     623-53-0, Ethyl methyl carbonate 1733-36-9,
     Methoxyacetonitrile 14283-07-9, Lithium
     tetrafluoroborate
     RL: TEM (Technical or engineered material use); USES (Uses)
        (electrolyte for use in energy storage device)
RN   96-49-1  HCAPLUS
CN   1,3-Dioxolan-2-one  (CA INDEX NAME)
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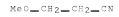
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

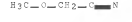
RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)



RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 1738-36-9 HCAPLUS
CN Acetonitrile, 2-methoxy- (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

```
CC   52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
     Section cross-reference(s): 76
ST   electrolyte use energy storage device; capacitor
     electrolyte
IT   Battery electrolytes
     Computers
     Electric vehicles
       Electrolytes
     Energy storage systems
     Fuel cell electrolytes
        (electrolyte for use in energy storage device)
IT   Nitriles, uses
     RL: TEM (Technical or engineered material use); USES (Uses)
        (electrolyte for use in energy storage device)
IT   Telephones
        (mobile; electrolyte for use in energy storage
        device)
IT   Computers
        (notebook; electrolyte for use in energy storage
        device)
IT   Capacitors
        (supercapacitor; electrolyte for use in energy
        storage device)
IT   60-29-7, Diethyl ether, uses   67-64-1, Acetone, uses   67-68-5,
     Dmso, uses   68-12-2, n,n-Dimethylformamide, uses   75-05-8,
     Acetonitrile, uses   75-36-5, Acetyl chloride   75-52-5,
     Nitromethane, uses   78-82-0, Isobutyronitrile   79-20-9, Methyl
     acetate   79-24-3, Nitroethane   80-73-9, N,N'-
     Dimethylimidazolidinone   96-47-9, 2-Methyltetrahydrofuran
     96-48-0, γ-Butyrolactone 96-49-1, Ethylene
     carbonate   98-88-4, Benzoyl chloride   98-95-3, Nitrobenzene,
     uses   100-47-0, Benzonitrile, uses 105-58-8, Diethyl
     carbonate   107-06-2, 1,2-Dichloroethane, uses   107-12-0,
     Propionitrile   107-31-3, Methyl formate   108-24-7, Acetic
     anhydride   108-29-2, γ-Valerolactone 108-32-7,
     Propylene carbonate   109-74-0, n-Butyronitrile   109-99-9, Thf,
     uses 110-67-8, 3-Methoxypropionitrile   110-71-4,
     1,2-Dimethoxyethane   110-86-1, Pyridine, uses   111-69-3,
     Adiponitrile   126-33-0, Sulfolane   126-73-8, Tributyl phosphate,
     uses   127-19-5, n,n-Dimethylacetamide   140-29-4, Benzyl cyanide
     141-78-6, Ethyl acetate, uses   429-42-5, Tetrabutylammonium
     tetrafluoroborate   512-56-1, Trimethyl phosphate   544-13-8,
     Glutaronitrile   554-12-1, Methyl propionate 616-38-6,
     Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
     646-06-0, 1,3-Dioxolane   657-39-6, Phenylphosphonic difluoride
     680-31-9, Hexamethyl phosphoramide   824-72-6, Phenylphosphonic
     dichloride   872-50-4, uses   1072-47-5, 4-Methyl-1,3-Dioxolane
     1499-21-4, Diphenyl phosphonic chloride 1738-36-9,
     Methoxyacetonitrile   1923-70-2, Tetrabutylammonium perchlorate
     3741-38-6, Ethylene sulfite   3967-55-3, 1,2-Dichloroethylene
     carbonate   4437-85-8, Butylene carbonate   7719-09-7, Thionyl
     chloride   7791-23-3, Selenium oxychloride   7791-25-5, Sulfuryl
     chloride   10025-87-3, Phosphorus oxychloride 14283-07-9
     , Lithium tetrafluoroborate   19836-78-3, n-Methyl-2-oxazolidinone
     22432-68-4, Tetrachloroethylene carbonate   35895-69-3,
     Tetraethylammonium trifluoromethanesulfonate   56525-42-9, Methyl
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propyl carbonate 69444-47-9, Methyltriethylammonium tetrafluoroborate 90756-35-7 120226-79-1, Triethylmethylammonium perchlorate
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte for use in energy storage device)
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:890872 HCAPLUS Full-text
DOCUMENT NUMBER: 145:274882
TITLE: Electrolyte for a lithium battery with improved safety
INVENTOR(S): Yew, Kyoung-Han; Song, Eui-Hwan; Jung, Cheol-Soo; Lee, Yong-Beom
PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea
SOURCE: Eur. Pat. Appl., 31pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1696501	A1	20060830	EP 2006-110467	2006 0228
EP 1696501	B1	20071205		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
KR 2006095221	A	20060831	KR 2005-16691	2005 0228
US 20060194118	A1	20060831	US 2006-365299	2006 0228
JP 2006245001	A	20060914	JP 2006-52835	2006 0228
CN 1866605	A	20061122	CN 2006-10073931	2006 0228
PRIORITY APPLN. INFO.:			KR 2005-16691 A	2005 0228

OTHER SOURCE(S): MARPAT 145:274882
ED Entered STN: 01 Sep 2006
AB The present invention relates to an electrolyte for a lithium battery and a lithium battery comprising the same. The electrolyte includes a non-aqueous organic solvent, a lithium salt, and a first additive capable of forming a chelating complex with a transition metal and which is stable at voltages ranging from about 2.5 to about 4.8 V.
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 622-53-0, Methyl ethyl carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 99076-65-6 131651-65-5
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery with improved safety)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

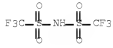
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

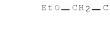
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-
, lithium salt (1:1) (CA INDEX NAME)



RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt
(1:1) (CA INDEX NAME)

IT 2141-62-0, 3-Ethoxy-propionitrile
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery with

improved safety)
RN 2141-62-0 HCAPLUS
CN Propanenitrile, 3-ethoxy- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST electrolyte lithium battery improved safety
IT Battery electrolytes
Safety
(electrolyte for lithium battery with improved safety)
IT Esters, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery with improved safety)
IT Secondary batteries
(lithium; electrolyte for lithium battery with improved safety)
IT Aromatic hydrocarbons, uses
Hydrocarbons, uses
RL: DEV (Device component use); USES (Uses)
(solvent; electrolyte for lithium battery with improved safety)
IT 77-77-0, Divinylsulfone 79-20-9, Methyl acetate 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-60-4, Propyl acetate 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 623-96-1, Dipropyl carbonate 872-36-6, Vinylene carbonate 3741-38-6, Ethylene sulfite 4437-85-8, Butylene carbonate 7439-93-2D, Lithium, salt 7447-41-8, Lithium chloride, uses 7791-03-9 10377-51-2, Lithium iodide 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 37220-89-6, Aluminum lithium oxide 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery with improved safety)
IT 91-15-6, 1,2-Benzenedicarbonitrile 91-16-7 105-37-3, Ethyl propionate 106-93-4, 1,2-Dibromoethane 110-18-9 110-61-2, Succinonitrile 110-71-4 111-55-7 119-84-6, 2-Chromanone 120-51-4, Benzyl benzoate 122-79-2, Phenyl acetate 141-78-6, Ethyl acetate, uses 704-01-8 830-81-9, 1-Naphthyl acetate 1663-45-2, DPPE 2141-62-0, 3-Ethoxy-propionitrile 2274-11-5, Ethylene glycol diacrylate 2388-68-3 6628-18-8 10340-88-2 13991-08-7 17427-91-7 17656-09-6, 2-Butenedinitrile 19289-58-8 19698-38-5 19752-95-5 34046-62-3 34112-17-9, 1,2-Cyclohexanedicarbonitrile 38383-49-2 63708-53-2 114435-02-8, Fluoroethylene carbonate 827300-14-1 827300-17-4
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery with improved safety)
IT 71-43-2, Benzene, uses 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic acid, ester 1330-20-7, Xylene, uses 27359-10-0, Trifluorotoluene

RL: DEV (Device component use); USES (Uses)
(solvent; electrolyte for lithium battery
with improved safety)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L52 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2006:142721 HCAPLUS Full-text
DOCUMENT NUMBER: 144:216059
TITLE: Lithium rechargeable battery pack
INVENTOR(S): Shimizu, Ryuichi; Yamaguchi, Takitaro; Jung,
Cheol-Soo; Chung, Hyun-Jei; Chang, Young-Chul
PATENT ASSIGNEE(S): Japan
SOURCE: U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

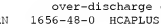
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20060035144	A1	20060216	US 2005-194562	2005 0802
KR 2006044919	A	20060516	KR 2005-25912	2005 0329
JP 2006073513	A	20060316	JP 2005-225810	2005 0803
PRIORITY APPLN. INFO.:			JP 2004-226620 A	2004 0803
			KR 2005-25912 A	2005 0329

ED Entered STN: 16 Feb 2006
AB A lithium rechargeable battery includes a pos. electrode that intercalates and deintercalates lithium and a neg. electrode that intercalates and deintercalates lithium and has a current collector including Cu or a Cu alloy. In addition, the battery includes a separator interposed between the pos. electrode and the neg. electrode, and an electrolyte that transfers lithium ions.
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(lithium rechargeable battery pack with improved over-discharge characteristics)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

IT 1656-48-0
RL: MOA (Modifier or additive use); USES (Uses)
(lithium rechargeable battery pack with improved over-discharge characteristics)
RN 1656-48-0 HCAPLUS
CN Propanenitrile, 3,3'-oxybis- (CA INDEX NAME)



INCL 429188000; 429339000; 429307000; 429245000; 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium rechargeable battery pack
IT Battery electrolytes
(lithium rechargeable battery pack with improved over-discharge characteristics)
IT Secondary batteries
(lithium; lithium rechargeable battery pack with improved over-discharge characteristics)
IT Copper alloy, base
RL: DEV (Device component use); USES (Uses)
(lithium rechargeable battery pack with improved over-discharge characteristics)
IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO2) 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(lithium rechargeable battery pack with improved over-discharge characteristics)
IT 91-15-6, Phthalonitrile 109-77-3, Malononitrile 110-61-2, Succinonitrile 111-69-3, Adiponitrile 111-97-7, Thiodipropionitrile 544-13-8, Glutaronitrile 626-17-5, IsoPhthalonitrile 629-40-3, Suberonitrile 646-20-8, Pimelonitrile 1119-85-3, 3-Hexenedinitrile 1656-48-0 1675-69-0, Azelanitrile 1871-96-1, Sebaconitrile 2244-07-7, Undecanenitrile 2437-25-4, Dodecanenitrile 2465-93-2, Triscyanoethoxypropane 3386-87-6 4210-60-0,

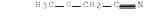
tert-Butylmalononitrile 7321-55-3, Dimethylmalononitrile 7528-78-1 16852-14-5 28906-50-5, Methylglutaronitrile 114435-02-8, Fluoroethylene carbonate 183582-92-5, 1,3,5-Cyclohexanetricarbonitrile
RL: MOA (Modifier or additive use); USES (Uses)
(lithium rechargeable battery pack with improved over-discharge characteristics)

L52 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:1028668 HCAPLUS Full-text
DOCUMENT NUMBER: 144:131721
TITLE: Non-corrosive electrolyte compositions containing perfluoroalkylsulfonyl imides for high power Li-ion batteries
AUTHOR(S): Di Censo, Davide; Exnar, Ivan; Graetzel, Michael
CORPORATE SOURCE: Laboratoire de Photonique et Interfaces (LPI), ISIC-Station 6, Ecole Polytechnique Federale (EPFL), Lausanne, 1015, Switz.
SOURCE: Electrochemistry Communications (2005), 7(10), 1000-1006
CODEN: ECCMF9; ISSN: 1388-2481
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 23 Sep 2005
AB The use of LiN(SO2CF3)2 in Li-ion secondary batteries was a promising alternative to LiPF6. However, in practice this salt was not used in rechargeable batteries due to severe corrosion of the Al current collector. The spinel Li4Ti5O12 is an alternative material for anodes instead of graphite and for batteries with this material, new electrolyte compns. can be considered which solve the corrosion problem and allow the use of imide-type salts. The corrosion of Al electrodes polarized at high voltages in aprotic solvents containing LiSO3CF3 (LiTf) or LiN(SO2CF3)2 (LiTFSI) or LiN(SO2C2F5)2 (LiBETI) was studied. Despite the observation that in common battery solvents LiTFSI causes severe corrosion of the Al current collector at 3.7 V (vs. Li), solvents having a cyano-group showed a repassivation potential at 4.15 V (vs. Li). Based on the exptl. observations and literature reports, a mechanism for the inhibiting action of nitriles is proposed. The nitrile-based electrolytes allow the use of LiTFSI in com. batteries with LiCoO2 as cathode material on Al current collectors.
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 1738-36-9, Methoxyacetonitrile
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

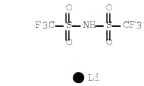
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 1738-36-9 HCAPLUS

CN Acetonitrile, 2-methoxy- (CA INDEX NAME)



IT 90076-65-6, LiTFSI
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(electrolyte; non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
ST fluoroalkyl sulfonyl imide noncorrosive electrolyte lithium battery
IT Battery electrolytes
Corrosion
(non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(current collector; in study of non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
IT 75-05-8, Acetonitrile, uses 96-48-0 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4 1738-36-9, Methoxyacetonitrile
RL: DEV (Device component use); USES (Uses)
(electrolyte containing; non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
IT 33454-82-9, Lithium trifluoro methanesulfonate (LiSO3CF3) 90076-65-6, LiTFSI 132843-44-8, Lithium bis(pentafluoroethanesulfonyl)imide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(electrolyte; non-corrosive electrolyte compns. containing perfluoroalkylsulfonyl imides for Li-ion batteries)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:567326 HCAPLUS Full-text
DOCUMENT NUMBER: 144:353605

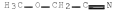
TITLE: Nanostructured electrode materials for high rate, large format lithium ion batteries
AUTHOR(S): Glomski, Brian; Xu, Charlie; Miller, John; Silkowski, Chris; Huggett, Sarah; Heath, Mike; Sholtes, Phil; Walker, Stephanie; Wixom, Mike
CORPORATE SOURCE: T/J Technologies, Inc., USA
SOURCE: Society of Automotive Engineers, [Special Publication] SP (2005), SP-1962(Military Vehicle Technology), 435-438
CODEN: SAESA2; ISSN: 0099-5908
PUBLISHER: Society of Automotive Engineers
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 01 Jul 2005
AB Lithium ion batteries are superior to NiMH batteries in energy d., but were excluded from the highest power d. applications due to safety and cost limitations. The cathode materials in conventional lithium ion cells are based on metal oxide materials, typically containing nickel or cobalt, expensive and reactive with the electrolyte. Metal oxides are electronic insulators, which can limit the rate performance of lithium ion cells, resulting in relatively high open circuit potentials. This limits the charge acceptance rate, since the polarization under high rate charging (> 10C) can exceed the potential limit of the electrolyte. Similarly, the open circuit potential of conventional graphitic anode materials is close to the lithium plating potential which also limits high charge rate acceptance. T/J Technologies has developed and demonstrated new bulk energy storage concepts based on nanostructured composite metal oxide anode and metal phosphate cathode electrodes. The composite design provides for high electronic conductivity, and the nanostructure limits the lithium transport distance. The open circuit potentials for these materials are displaced from the lithium plating and electrolyte decomposition potentials. These features contribute to high rate capability. In these systems, up to 25% of the C/10 capacity is retained at charge/discharge rates of >100 C. These cells have improved thermal stability and electrolyte oxidation resistance, excellent cycle life, high capacity retention at high rates, and potentially low cost for high volume/large format applications. With much higher energy d. than ultra capacitors or hybrid battery/capacitors, these ultra-high rate lithium batteries are ideally suited for hybrid elec. vehicles (Future Combat System).
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 1738-36-9, Methoxyacetonitrile 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(nanostructured electrode materials for high rate, large format lithium ion batteries)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

RN 1738-36-9 HCAPLUS
CN Acetonitrile, 2-methoxy- (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49, 72
ST nanostructured secondary battery electrode lithium ion metal phosphate oxide
IT Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(anode; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Phosphates, uses
RL: DEV (Device component use); USES (Uses)
(cathode; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Electric capacitance
(charging and discharging, stability over cycling; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Secondary batteries
(lithium; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Battery electrodes
Battery electrolytes

Electric conductivity
Electric potential
Nanocomposites
Nanostructures
Open circuit potential
(nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Carbon black, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Thermal analysis
(of electrode active material in electrolyte solvent; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT Porosity
(of electrode catalysts; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(anode, MCMB; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(anode; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode control material; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 7440-50-8, Copper, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(foil, anode substrate; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(foil, cathode substrate; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 1738-36-9, Methoxyacetonitrile 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene difluoride 244761-29-3, Lithium bis(oxalato)borate
RL: DEV (Device component use); USES (Uses)
(nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 9003-07-0, Celgard 3501 685136-08-7, Celgard 2325
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(separator; nanostructured electrode materials for high rate, large format lithium ion batteries)
IT 12031-95-7, Lithium titanate (Li4Ti5O12) 15365-14-7, Iron lithium phosphate (FeLiPO4)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(temperature or size-modified; nanostructured electrode materials for

high rate, large format lithium ion batteries)
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L52 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:497321 HCAPLUS Full-text
DOCUMENT NUMBER: 143:29529
TITLE: Nonaqueous electrolytes having an extended temperature range for battery applications
INVENTOR(S): Sun, Luying
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20050123835	A1	20050609	US 2003-731268	2003 1209
PRIORITY APPLN. INFO.:			US 2003-731268	2003 1209

OTHER SOURCE(S): MARPAT 143:29529
ED Entered STN: 10 Jun 2005
AB The present invention discloses non-aqueous electrolytes having an extended temperature range for battery applications. The electrolyte comprises an electrolyte salt, e.g., LiPF6, a first non-aqueous solvent, and a second non-aqueous solvent. The electrolyte of the present invention has higher ionic conductivity, lower f.p., and lower vapor pressure at high temperature than com. electrolytes. These non-aqueous electrolytes can be used, for example, in lithium-ion batteries. Methods of making lithium-ion batteries are also described.
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-67-8, 3-Methoxypropionitrile 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 1091-55-4, 2-Acetoxyacetonitrile 1656-48-0 1738-36-9, Methoxyacetonitrile 2141-62-0, 3-Ethoxypropionitrile 14283-07-9, Lithium tetrafluoroborate 18804-04-1, uses 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 56756-91-3 62957-60-2, Ethoxyacetonitrile 90076-65-6 852995-04-1
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes having extended temperature range for battery applications)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)

RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

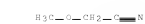
RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 1001-55-4 HCAPLUS
CN Acetonitrile, 2-(acetyloxy)- (CA INDEX NAME)

RN 1656-48-0 HCAPLUS
CN Propanenitrile, 3,3'-oxybis- (CA INDEX NAME)

RN 1738-36-9 HCAPLUS

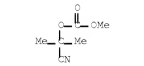
CN Acetonitrile, 2-methoxy- (CA INDEX NAME)



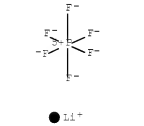
RN 2141-62-0 HCAPLUS
CN Propanenitrile, 3-ethoxy- (CA INDEX NAME)

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

RN 18804-04-1 HCAPLUS
CN Carbonic acid, 1-cyano-1-methylethyl methyl ester (9CI) (CA INDEX NAME)



RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

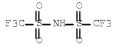


RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

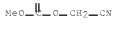
RN 56756-91-3 HCAPLUS
CN Propanenitrile, 2-(acetyloxy)-2-methyl- (CA INDEX NAME)

RN 62957-60-2 HCAPLUS
CN Acetonitrile, 2-ethoxy- (CA INDEX NAME)

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-
, lithium salt (1:1) (CA INDEX NAME)



RN 852995-04-1 HCAPLUS
CN Carbonic acid, cyanomethyl methyl ester (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-52; H01M004-50; H01M004-58
INCL 429326000; 429330000; 429339000; 429231300; 429231100; 429223000;
429221000; 429224000; 429231800

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 76
ST battery nonaq electrolyte extended temp range
IT Electrochromic devices
Sensors
(electrolyte; nonaq. electrolytes having extended temperature range for battery applications)
IT Secondary batteries
(lithium; nonaq. electrolytes having extended temperature range for battery applications)
IT Battery electrolytes
Electrolytic capacitors
Fuel cell electrolytes
Ionic conductivity
(nonaq. electrolytes having extended temperature range for battery applications)
IT Carbonaceous materials (technological products)
Coke
Esters, uses
Ethers, uses
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes having extended temperature range for battery applications)
IT Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(perfluoro, lithium salt; nonaq. electrolytes having extended temperature range for battery applications)
IT Perfluoro compounds
RL: DEV (Device component use); USES (Uses)
(sulfonic acids, lithium salt; nonaq. electrolytes having extended temperature range for battery applications)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-67-8, 3-Methoxypropionitrile 463-79-6D, Carbonic acid, ester, cyclic 463-79-6D, Carbonic acid, ester, linear 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 1001-55-4, 2-Acetoxyacetonitrile 1656-48-0 1738-36-9, Methoxyacetonitrile 2141-62-0, 3-Ethoxypropionitrile 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 12031-65-1, Lithium nickel oxide (LiNiO2) 12057-17-9, Lithium manganese oxide (LiMn2O4) 12190-79-3, Cobalt lithium oxide (CoLiO2) 14283-07-9, Lithium tetrafluoroborate 15365-14-7, Iron lithium phosphate felipo4 18804-04-1, uses 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 56756-91-3 62957-60-2, Ethoxyacetonitrile 90076-65-6 260362-83-2 311346-25-5, Cobalt lithium nickel oxide (Co0.1-0.9LiNi0.1-0.9O2) 852995-04-1
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes having extended temperature range for battery applications)

L52 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:286861 HCAPLUS Full-text
DOCUMENT NUMBER: 140:290041
TITLE: Electrolyte composition having improved aluminum anticorrosive properties
INVENTOR(S): Exnar, Ivan; Di Censo, Davide
PATENT ASSIGNEE(S): Xoliox S. A., Switz.
SOURCE: Eur. Pat. Appl., 22 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1406336	A1	20040407	EP 2002-405848	2002 1001

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK

PRIORITY APPLN. INFO.: EP 2002-405848 2002 1001

ED Entered STN: 08 Apr 2004

AB The invention relates to an electrolyte composition for use in an electrochem. battery having an aluminum current collector, the composition comprising an imide salt and a nitrile-based solvent.

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 1736-36-9, Methoxyacetonitrile 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide
RL: DEV (Device component use); USES (Uses)
(electrolyte composition having improved aluminum anticorrosive properties)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

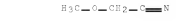
RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

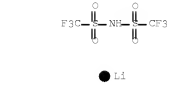
RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 1738-36-9 HCAPLUS
CN Acetonitrile, 2-methoxy- (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-
, lithium salt (1:1) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M006-18; H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
ST battery electrolyte compn improved aluminum
anticorrosive property
IT Amperometry
Battery electrolytes
Corrosion prevention
Plasticizers
(electrolyte composition having improved aluminum
anticorrosive properties)
IT Fluoropolymers, uses
Imides
Polyoxyalkylenes, uses
Polyurethanes, uses
RL: DEV (Device component use); USES (Uses)
(electrolyte composition having improved aluminum
anticorrosive properties)
IT Nitriles, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; electrolyte composition having improved aluminum
anticorrosive properties)
IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(current collector; electrolyte composition having
improved aluminum anticorrosive properties)
IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene
carbonate 105-58-8, Diethyl carbonate 108-32-7
, Propylene carbonate 109-99-9, Thf, uses 110-71-4
616-38-6, Dimethyl carbonate 623-53-0, Ethyl

methyl carbonate 646-06-0, 1,3-Dioxolane 1708-36-6, Methoxyacetonitrile 9003-05-8, Polyacrylamide 9003-20-7, Polyvinylacetate 9003-21-8, Polymethylacrylate 9003-39-8, Polyvinylpyrrolidone 12031-95-7, Lithium titanium oxide li4ti5o12 12190-79-3, Cobalt lithium oxide colio2 24937-79-9, Polyvinylidene fluoride 25322-68-3, Peo 26809-02-9, Polyacetonitrile 57619-91-7, Polytetraethylene glycol diacrylate 73506-93-1, Diethoxyethane 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 132843-44-8, Lithium bis(perfluoroethylsulfonyl)imide
RL: DEV (Device component use); USES (Uses)
(electrolyte composition having improved aluminum anticorrosive properties)

IT 143-24-8, Tetraglyme 872-50-4, n-Methylpyrrolidone, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte composition having improved aluminum anticorrosive properties)

L52 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:166259 HCAPLUS Full-text
DOCUMENT NUMBER: 132:210209
TITLE: Secondary nonaqueous-electrolyte batteries with electrolytes containing cyanoethoxy compounds
INVENTOR(S): Kobayashi, Aya; Izuchi, Shuichi
PATENT ASSIGNEE(S): Yuasa Battery Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000077096	A	20000314	JP 1998-244674	1998 0831
PRIORITY APPLN. INFO.:			JP 1998-244674	1998 0831

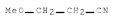
OTHER SOURCE(S): MARPAT 132:210209
ED Entered STN: 14 Mar 2000
AB Claimed batteries are equipped with electrolytes containing cyanoethoxy compds. R(OC2H4CN)n (n = 1-4; R = CmH2m+2-n, CmH2m+2-n(OC2H4)p, CmH2m+2-nCO, or CmH2m+2-nOCO; m = 1-3; p = 1-4) as nonaq. solvents for Li salts. Optionally, the batteries are equipped with gelled polymer electrolytes. The batteries have long cycle life at low temperature
IT 14283-07-9, Lithium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolytes; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-67-8 1656-48-0, Bis-2-cyanoethyl ether 2141-62-0
RL: DEV (Device component use); USES (Uses)
(solvents; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

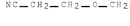
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)



RN 1656-48-0 HCAPLUS
CN Propanenitrile, 3,3'-oxybis- (CA INDEX NAME)



RN 2141-62-0 HCAPLUS
CN Propanenitrile, 3-ethoxy- (CA INDEX NAME)

IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST cyanoethoxy compd nonaq electrolyte solvent battery; lithium battery electrolyte
IT solvent cyanoethoxy compd
Secondary batteries
(lithium; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
IT Battery electrolytes

(nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(trifunctional acrylates, lithium complexes, gelled electrolytes; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
IT 14283-07-9, Lithium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolytes; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
IT 25322-68-3D, Polyethylene glycol, trifunctional acrylates, lithium complexes
RL: DEV (Device component use); USES (Uses)
(gelled electrolytes; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)
IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-67-8 1656-48-0, Bis-2-cyanoethyl ether 2141-62-0 3386-87-6 5325-93-9 20597-73-3 32846-35-8, Bis 2-cyanoethyl carbonate 35633-51-3 260362-83-2
RL: DEV (Device component use); USES (Uses)
(solvents; nonaq. batteries with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

L52 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:144319 HCAPLUS Full-text
DOCUMENT NUMBER: 132:183113
TITLE: Secondary nonaqueous electrolyte batteries
INVENTOR(S): Tabuchi, Toru; Aoki, Takashi; Nakamitsu, Kazuhiro; Mizutani, Minoru
PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan; GS Melcotec K. K.
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

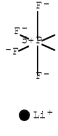
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000067913	A	20000303	JP 1998-305833	1998 1027
PRIORITY APPLN. INFO.:			JP 1998-159629	A 1998 0608

ED Entered STN: 03 Mar 2000
AB The batteries use a nonaq. Li salt electrolyte solution containing a cyano group containing ether or glycol and a carbonate ester.
IT 96-49-1, Ethylene carbonate 110-67-8 623-53-0, Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent mixts. containing cyano ethers or cyano glycols and carbonate esters for secondary lithium batteries)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)

RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (CA INDEX NAME)

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery electrolyte soln
compn; lithium battery electrolyte cyano ether
carbonate ester; cyano glycol carbonate ester lithium
battery electrolyte
IT Battery electrolytes
(electrolyte solvent mixts. containing cyano ethers or
cyano glycols and carbonate esters for secondary lithium
batteries)
IT 96-49-1, Ethylene carbonate 110-67-8
623-53-0, Ethyl methyl carbonate 3386-87-6
21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent mixts. containing cyano ethers or
cyano glycols and carbonate esters for secondary lithium
batteries)

L52 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:737130 HCAPLUS Full-text
DOCUMENT NUMBER: 131:325078

TITLE: Primary or secondary electrochemical generator
INVENTOR(S): Gratzel, Michael; Sugnaux, Francois R.; Pappas, Nicholas
PATENT ASSIGNEE(S): Ecole Polytechnique Federale De Lausanne (Epfl) Sri, Switz.
SOURCE: PCT Int. Appl., 29 pp. CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9959218	A1	19991118	WO 1999-EP3261	19990508
W: CN, JP, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1086506	A1	20010328	EP 1999-932452	19990508
R: CH, DE, FR, GB, LI, NL, IE				
PRIORITY APPLN. INFO.:			EP 1998-810431 A	19980512
			WO 1999-EP3261 W	19990508

ED Entered STN: 19 Nov 1999
AB A high power d. and high capacity primary or secondary electrochem. generator has at least one electrode composed of an elec. active solid material, the electrode having a mesoporous texture forming a bi-continuous junction of large sp. surface area with the electrolyte. The specific morphol. of the electroactive material permits high rates of ion insertion in the solid while allowing for rapid ion transport in electrolyte present in the porous space of the electrode. Specific methods for preparation of the electrode are disclosed, in particular the control of the electrode morphol. by use of surfactant assemblies such as surfactant micelles exerting a templating effect during the chemical synthesis of the electroactive material.
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 1738-36-9, Methoxyacetonitrile 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 90076-65-6 131651-65-5, 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt
RL: DEV (Device component use); USES (Uses)
(primary or secondary electrochem. generator)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 105-58-8 HCAPLUS
CN Carbonic acid, diethyl ester (CA INDEX NAME)

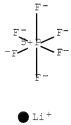
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (CA INDEX NAME)

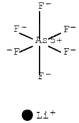
RN 1738-36-9 HCAPLUS
CN Acetonitrile, 2-methoxy- (CA INDEX NAME)

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

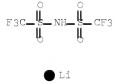
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)

IC ICM H01M010-40
ICS H01M004-48; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST battery electrode transition metal oxide chalcogenide
IT Primary batteries
Secondary batteries
(lithium; primary or secondary electrochem. generator)
IT Battery electrodes
(primary or secondary electrochem. generator)
IT 96-48-0 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 646-06-0, Dioxolane 1309-37-1, Iron oxide (Fe2O3), uses 1312-43-2, Indium oxide 1313-13-9, Manganese dioxide, uses 1313-27-5, Molybdenum trioxide, uses 1313-96-8, Niobium pentoxide 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium pentoxide, uses 1317-33-5, Molybdenum sulfide mos2, uses 1317-61-9, Iron oxide

(Fe3O4), uses 1738-36-9, Methoxyacetonitrile 2923-17-3, Lithium trifluoroacetate 11113-84-1, Ruthenium oxide 11126-12-8, Iron sulfide 11129-18-3, Cerium oxide 12039-13-3, Titanium disulfide 12055-23-1, Hafnium dioxide 12067-45-7, Titanium diselenide 12138-09-9, Tungsten sulfide ws2 12645-46-4, Iridium oxide 13463-67-7, Titania, uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 26856-69-9, Methoxypropionitrile 28106-65-2, Tetrafluoropropanol 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 37245-92-4, Ruthenium sulfide 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 59763-75-6, Tantalum oxide 66216-18-0 90076-65-6 131344-56-4, Cobalt lithium nickel oxide 131651-65-5, 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt 132404-42-3 248588-09-2, Indium lithium manganese sodium oxide
RL: DEV (Device component use); USES (Uses)
(primary or secondary electrochem. generator)
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

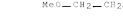
L52 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:206870 HCAPLUS Full-text
DOCUMENT NUMBER: 130:252076
TITLE: Preparation of alcohol cyanoethyl ethers for lithium batteries and organic electrolytic solutions containing them
INVENTOR(S): Nishikawa, Satoshi
PATENT ASSIGNEE(S): Sunstar Engineering, Inc., Japan; Uni Sunstar Bv
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11080112	A	19990326	JP 1997-245178	19970910
JP 3946825	B2	20070718		
PRIORITY APPLN. INFO.:			JP 1997-245178	19970910

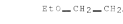
OTHER SOURCE(S): MARPAT 130:252076
ED Entered STN: 01 Apr 1999
AB (R1O)aR2(OCH2CH2CN)b (I; R1 = C11-3 alkyl; R2 = residue of alcs. having 1-4 OH groups; a = 0-3; b = 1-4; a + b = 1-4) are prepared by cyanoethylation of alcs. with acrylonitrile (II) in the presence of ≥1 selected from (a) LiOH and (b) Li metal, Li alkoxides, compds. comprising Li and active methylene compds. such as Li acetylacetonate and in the absence of H2O. The organic electrolyte solns. for Li batteries or Li ion secondary batteries comprise I and Li salts dissolved therein. The electrolyte solns. may contain aprotic polar compds. This method gives I without discoloration due to polymerization of II. II was added dropwise to a mixture of ethylene glycol and LiOH.H2O at 40-0° over 2 h, and the reaction mixture was further stirred at 40-50° for 3 h to give ethylene glycol bis(2-cyanoethyl) ether (III) with purity ≥99.5%. LiClO4 was dissolved in III to give an electrolyte solution showing conductivity 2.7 + 10-3 S·Cm-1.
IT li0-67-0P, 2-Cyanoethyl methyl ether 2141-62-0P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)

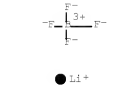


RN 2141-62-0 HCAPLUS
CN Propanenitrile, 3-ethoxy- (CA INDEX NAME)



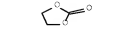
IT 14283-07-9
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



IT 96-49-1, Ethylene carbonate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



IC ICM C07C255-13
ICS B01J023-04; C07C253-30; H01M010-40; C07B061-00
CC 23-19 (Aliphatic Compounds)
Section cross-reference(s): 52
ST polyol cyanoethyl ether prepn battery electrolyte; alc cyanoethyl ether prepn battery electrolyte; acrylonitrile cyanoethylation polyol lithium

hydroxide catalyst; ethylene glycol cyanoethyl ether
battery electrolyte
IT Polar solvents
Polar solvents
(aprotic; preparation of (poly)alc. cyanoethyl ethers as
battery electrolytes by LiOH-catalyzed
reaction of polyols and acrylonitrile)
IT Cyanoethylation
Cyanoethylation
(catalysts; preparation of (poly)alc. cyanoethyl ethers as
battery electrolytes by LiOH-catalyzed
reaction of polyols and acrylonitrile)
IT Ethylation catalysts
Ethylation catalysts
(cyanoethylation catalysts; preparation of (poly)alc. cyanoethyl
ethers as battery electrolytes by
LiOH-catalyzed reaction of polyols and acrylonitrile)
IT Primary batteries
Secondary batteries
(lithium; preparation of (poly)alc. cyanoethyl ethers as
battery electrolytes by LiOH-catalyzed
reaction of polyols and acrylonitrile)
IT Alcohols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(polyhydric; preparation of (poly)alc. cyanoethyl ethers as
battery electrolytes by LiOH-catalyzed
reaction of polyols and acrylonitrile)
IT Battery electrolytes
(preparation of (poly)alc. cyanoethyl ethers as battery
electrolytes by LiOH-catalyzed reaction of polyols and
acrylonitrile)
IT Alcohols, reactions
Glycols, reactions
Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of (poly)alc. cyanoethyl ethers as battery
electrolytes by LiOH-catalyzed reaction of polyols and
acrylonitrile)
IT 7439-93-2, Lithium, uses 18115-70-3, Lithium acetylacetonate,
uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of (poly)alc. cyanoethyl ethers as battery
electrolytes by LiOH-catalyzed reaction of polyols and
acrylonitrile)
IT 112-27-6P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP
(Preparation); RACT (Reactant or reagent)
(preparation of (poly)alc. cyanoethyl ethers as battery
electrolytes by LiOH-catalyzed reaction of polyols and
acrylonitrile)
IT 110-67-8P 110-67-8P, 2-Cyanoethyl methyl ether
2141-62-0P 2465-91-0P 2465-93-2P 3386-87-6P,
Ethylene glycol bis(2-cyanoethyl) ether 6959-71-3P
9003-07-0DP, Polypropylene, triol derivs., bis(2-cyanoethyl)ether
16792-83-9P, Propylene glycol bis(2-cyanoethyl) ether
22397-30-4P 22397-31-5P, Diethylene glycol bis(2-cyanoethyl)
ether 25265-71-8DP, Dipropylene glycol, ether with 2-cyanoethyl
and Me 35633-45-5P 35633-50-2P 35633-51-3P 39377-81-6P
39927-06-5P, Polyethylene glycol bis(2-cyanoethyl) ether
51299-82-2P 57741-46-5P, Triethylene glycol bis(2-cyanoethyl)
ether 59113-36-9DP, Diglycerin, ether with tetrakis(2-
cyanoethyl) 61579-08-6P 180316-31-8P, 2,5,8,11-
Tetraoxatetradecane-14-nitrile 221628-60-0P 221628-62-2P
221628-64-4P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)

(preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 56-81-5, 1,2,3-Propanetriol, reactions 57-55-6, 1,2-Propanediol, reactions 64-17-5, Ethanol, reactions 67-56-1, Methanol, reactions 67-63-0, Isopropanol, reactions 71-23-8, n-Propanol, reactions 71-36-3, n-Butanol, reactions 102-71-6, Triethanolamine, reactions 107-13-1, 2-Propenenitrile, reactions 107-21-1, 1,2-Ethanediol, reactions 109-86-4, Ethylene glycol monomethyl ether 110-80-5, Ethylene glycol monoethyl ether 111-46-6, Diethylene glycol, reactions 111-77-3, Diethylene glycol monomethyl ether 112-35-6, Triethylene glycol monomethyl ether 115-77-5, reactions 122-20-3, Triisopropanolamine 1320-67-8, Propylene glycol monomethyl ether 4439-20-7 25265-71-8, Dipropylene glycol 25322-68-3 25322-69-4, Polypropylene glycol 25618-55-7 34590-94-8, Dipropylene glycol monomethyl ether 52125-53-8, Propylene glycol monoethyl ether 59113-36-9, Diglycerin
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 7791-03-9, Lithium perchlorate 14283-07-9
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 1310-65-2, Lithium hydroxide
RL: CAT (Catalyst use); USES (Uses)
(preparation of polyol cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 96-49-1, Ethylene carbonate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; preparation of (poly)alc. cyanoethyl ethers as battery electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

L52 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:129574 HCAPLUS Full-text
DOCUMENT NUMBER: 126:133588
ORIGINAL REFERENCE NO.: 126:25770h,25771a
TITLE: Nonaqueous electrolyte batteries using electrolytes containing self discharge inhibitors
INVENTOR(S): Jinno, Maruo; Uehara, Mayumi; Sakurai, Atsushi; Nishio, Koji; Saito, Toshihiko
PATENT ASSIGNEE(S): Sanyo Denki Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08321312	A	19961203	JP 1995-150844	19950524
PRIORITY APPLN. INFO.:			JP 1995-150844	19950524

ED Entered STN: 26 Feb 1997

AB Li batteries use electrolytes containing LiCF3SO3 or LiPF6 dissolved in high dielec. constant solvent selected from ethylene carbonate, propylene carbonate, and butylene carbonate; where the electrolytes contain 1-20 volume% additive selected from triethylamine, n-butylamine, aniline, tri-Me hydroxylamine, 1-dimethylamino-2-methoxy ethane, acetonitrile, acrylonitrile, 3-methoxy propionitrile, benzonitrile, nitromethane, nitroethane, N,N-dimethylacetamide, N,N-dimethylformamide, formamide, N-methyl-2-pyrrolidone, N,N'-dimethyl imidazolidinone, isoxazole, 3,5-di-Me isoxazole, 3-methyl-2-oxazolidone, 1,2,3-oxadiazole, N-Me morpholine, di-Me sulfide, Et Me sulfide, 2-Me thiophene, 1-butane thiol, benezenethiol, di-Me sulfate, di-Et sulfate, di-Me sulfite, di-Et sulfite, butadienesulfone, 3-Me sulfolene, 1,4-thioxane, phenoxathiin, 1,4-thiazine, thiomorpholine, pyridine, 1,3-dimethyl-2-imidazolidinone, DMSO, di-Me sulfone, Me Et sulfonate, and di-Me sulfinite. The electrolytes may contain 1,2-dimethoxyethane. Since the additives react with Li in anodes and the solvents and the solutes in the electrolytes to form coatings on the anodes for prevention of the reaction between the electrolytes and the anodes, the batteries have improved storage property. These batteries have long shelf life.

IT 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

RN 21324-40-3 HCAPLUS

CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

IT 110-67-8, 3-Methoxypropionitrile
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(self discharge inhibitors in nonaq. electrolyte solns. for lithium batteries)

RN 110-67-8 HCAPLUS

CN Propanenitrile, 3-methoxy- (CA INDEX NAME)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvents for nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

IC ICM H01M006-16
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium battery electrolyte self discharge inhibitor
IT Battery electrolytes
(self discharge inhibitors in nonaq. electrolyte solns. for lithium batteries)
IT 7439-93-2, Lithium, uses 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)
IT 62-53-3, Aniline, uses 64-67-5, Diethyl sulfate 67-68-5, Dimethylsulfoxide, uses 67-71-0, Dimethylsulfone 68-12-2, N,N-Dimethylformamide, uses 75-05-8, Acetonitrile, uses 75-12-7, Formamide, uses 75-18-3, Dimethylsulfide 75-52-5, Nitromethane, uses 77-78-1, Dimethyl sulfate 79-24-3, Nitroethane 80-73-9, N,N'-Dimethylimidazolidinone 100-47-0, Benzonitrile, uses 107-13-1, Acrylonitrile, uses 108-98-5, Benzenethiol, uses 109-02-4, N-Methylmorpholine 109-73-9, n-Butylamine, uses 109-79-5, 1-Butanethiol 110-67-8, 3-Methoxypropionitrile 110-86-1, Pyridine, uses 121-44-8, Triethylamine, uses 123-90-0, Thiomorpholine 127-19-5, N,N-Dimethylacetamide 262-20-4, Phenoxathiin 288-14-2, Isoxazole 288-43-7, 1,2,3-Oxadiazole 290-56-2, 1,4-Thiazine 290-57-3, 1,4-Thiazine 300-87-8, 3,5-Dimethylisoxazole 554-14-3, 2-Methylthiophene 616-42-2, Dimethyl sulfite 623-81-4, Diethyl sulfite 624-89-5, Ethylmethylsulfide 666-15-9 872-50-4, N-Methyl-2-pyrrolidone, uses 1193-10-8, 3-Methylsulfolene 1912-28-3, Methyl ethyl sulfonate 3030-44-2 5669-39-6, Trimethylhydroxylamine 15980-15-1, 1,4-Thioxane 19836-78-3 28452-93-9, Butadienesulfone
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(self discharge inhibitors in nonaq. electrolyte solns. for lithium batteries)
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 4437-85-8, Butylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvents for nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

L52 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:361913 HCAPLUS Full-text
DOCUMENT NUMBER: 122:145421
ORIGINAL REFERENCE NO.: 122:26779a,26782a
TITLE: Model for oxide film growth in aluminum anodization
AUTHOR(S): Izotov, V. Yu.; Maletin, Yu. A.; Koval, L. B.; Mironova, A. A.; Kozachkov, S. G.; Nezdorovin, V. P.
CORPORATE SOURCE: V. I. Vernadsky Inst., National Acad. Sci.

Ukraine, Kiev, 252680, Ukraine
SOURCE: Teoreticheskaya i Eksperimental'naya Khimiya (1994), 30(5), 272-6
CODEN: TEKHA4; ISSN: 0497-2627
PUBLISHER: Institut Fizicheskoi Khimii im. L. V. Pisarzhevskogo AN Ukrainy
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 17 Feb 1995

AB A theor. model was developed to describe the formation of amorphous or polycryst. oxide films on the surface of Al during its anodization. Satisfactory agreement between the model and exptl. data on anodization in electrolytes based on various dicarboxylic acids is illustrated.

IT 14283-07-9, Lithium tetrafluoroborate
RL: MOA (Modifier or additive use); USES (Uses)
(aluminum anodization in baths containing various solvents and salts)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

IT 108-32-7, Propylene carbonate 110-67-8, 3-Methoxypropionitrile
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum anodization in baths containing various solvents and salts)
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

RN 110-67-8 HCAPLUS
CN Propanenitrile, 3-methoxy- (CA INDEX NAME)

CC 72-7 (Electrochemistry)
Section cross-reference(s): 56
IT 429-06-1, Tetraethylammonium tetrafluoroborate 1113-38-8, Ammonium oxalate 2226-88-2, Ammonium succinate 14283-07-9, Lithium tetrafluoroborate 15967-97-2 18815-40-2, Ammonium malonate 19090-60-9, Ammonium adipate 29750-34-3, Ammonium glutarate 41606-95-5, Tetraethylammonium phthalate, uses 161204-77-9, uses
RL: MOA (Modifier or additive use); USES (Uses)
(aluminum anodization in baths containing various solvents and

salts)

IT 68-12-2, Dimethylformamide, uses 75-05-8, Acetonitrile, uses 79-16-3, N-Methylacetamide 96-48-0, γ-Butyrolactone 107-21-1, Ethylene glycol, uses 108-32-7, Propylene carbonate 110-67-8, 3-Methoxypropionitrile 111754-40-6, Tetraethylammonium maleate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum anodization in baths containing various solvents and salts)

FULL SEARCH HISTORY

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=> d his nofile

     (FILE 'HOME' ENTERED AT 10:15:09 ON 06 AUG 2008)

     FILE 'HCAPLUS' ENTERED AT 10:15:52 ON 06 AUG 2008
                E US20050123835/PN
L1            1 SEA ABB=ON  PLU=ON  US20050123835/PN
                D ALL
                SEL RN

     FILE 'REGISTRY' ENTERED AT 10:16:47 ON 06 AUG 2008
L2           27 SEA ABB=ON  PLU=ON  (463-79-6/BI OR 1001-55-4/BI OR
                105-58-8/BI OR 108-32-7/BI OR 110-67-8/BI OR 12031-65-1
                /BI OR 12057-17-9/BI OR 12190-79-3/BI OR 14283-07-9/BI
                OR 15365-14-7/BI OR 1656-48-0/BI OR 1738-36-9/BI OR
                18804-04-1/BI OR 21324-40-3/BI OR 2141-62-0/BI OR
                260362-83-2/BI OR 29935-35-1/BI OR 311346-25-5/BI OR
                56756-91-3/BI OR 616-38-6/BI OR 623-53-0/BI OR
                62957-60-2/BI OR 7782-42-5/BI OR 7791-03-9/BI OR
                852995-04-1/BI OR 90076-65-6/BI OR 96-49-1/BI)
                D SCAN

     FILE 'STNGUIDE' ENTERED AT 10:18:05 ON 06 AUG 2008

     FILE 'REGISTRY' ENTERED AT 10:19:23 ON 06 AUG 2008
L3           10 SEA ABB=ON  PLU=ON  L2 AND 1-99/LI
                D SCAN
L4            1 SEA ABB=ON  PLU=ON  14283-07-9/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 10:22:21 ON 06 AUG 2008
                D SCAN L1

     FILE 'REGISTRY' ENTERED AT 10:22:22 ON 06 AUG 2008
L5            1 SEA ABB=ON  PLU=ON  21324-40-3/RN
                D SCAN
L6            1 SEA ABB=ON  PLU=ON  29935-35-1/RN
                D SCAN
L7            1 SEA ABB=ON  PLU=ON  CL4LI/MF
                D SCAN
                E C2F6LINO4S2/MF
                E LIN/MF
                E LITHIUM TRIFLATE/CN
L8            1 SEA ABB=ON  PLU=ON  LITHIUM TRIFLATE/CN
                D SCAN
                E C2H2F6O4S2.LIN/MF
                E C2H2F6O4S2.LI/MF
                E "METHANESULFINIC ACID, 1,1,1-TRIFLUORO-, LITHIUM SALT
L9            1 SEA ABB=ON  PLU=ON  "METHANESULFINIC ACID, 1,1,1-TRIFLU
                ORO-, LITHIUM SALT (1:1)"/CN
                D SCAN
                E C H F3 O2 S . LI/MF
                E C H F3 O2 S . LIN/MF
                E C2 H2 F6 O4 S2 . LIN/MF
                E C H F3 O2 S .1/2 LIN/MF
L10           0 SEA ABB=ON  PLU=ON  1/LI AND 1/N AND 2/C AND 6/F ANF
                4/O AND 2/S
L11         699 SEA ABB=ON  PLU=ON  (LI(L)C(L)N(L)F(L)S(L)O)/ELS(L)6-7/
                ELC.SUB

     FILE 'HCAPLUS' ENTERED AT 10:41:30 ON 06 AUG 2008
                D SCAN L1

     FILE 'REGISTRY' ENTERED AT 10:41:30 ON 06 AUG 2008
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L12           8 SEA ABB=ON  PLU=ON  L2 AND ?NITRILE?/CNS
                D SCAN
L13           6 SEA ABB=ON  PLU=ON  L2 AND ?CARBONAT?/CNS
                D SCAN

     FILE 'STNGUIDE' ENTERED AT 10:43:15 ON 06 AUG 2008

     FILE 'LREGISTRY' ENTERED AT 10:44:36 ON 06 AUG 2008
L14             STR

     FILE 'REGISTRY' ENTERED AT 10:59:49 ON 06 AUG 2008
L15          50 SEA SSS SAM L14

     FILE 'LREGISTRY' ENTERED AT 11:01:03 ON 06 AUG 2008
L16             STR L14

     FILE 'REGISTRY' ENTERED AT 11:01:24 ON 06 AUG 2008
L17          50 SEA SSS SAM L16
L18             SCR 1918 OR 2043 OR 1839 OR 1946 OR 1994 OR 2008
L19          33 SEA SSS SAM L16 NOT L18
L20             SCR 1918 OR 2043 OR 1839 OR 1946 OR 1994 OR 2008 OR 202
L21          30 SEA SSS SAM L16 NOT L20
                D QUE STAT L19
L22         632 SEA SSS FUL L16 NOT L20
                SAV TEMP L22 WEI268REG/A
L23           3 SEA ABB=ON  PLU=ON  L2 AND L22
                D SCAN
                D SCAN L12
                D SCAN L13
                D SCAN L4
                E C2 H F6 N O4 S2 . LI/MF
L24           1 SEA ABB=ON  PLU=ON  C2 H F6 N O4 S2 . LI/MF
                D SCAN
                E LITHIUM PERFLUORO SULFONATE/CN
                E LITHIUM PERFLUOROSULFONATE/CN
L25           9 SEA ABB=ON  PLU=ON  ?LITHIUM?/CNS AND ?PERFLUORO?/CNS
                AND ?SULFONATE?/CNS
                D SCAN
L26          14 SEA ABB=ON  PLU=ON  L24 OR L25 OR (L4 OR L5 OR L6 OR
                L7)
L27         486 SEA ABB=ON  PLU=ON  L22 AND 1/NR
L28         146 SEA ABB=ON  PLU=ON  L22 NOT L27

     FILE 'LREGISTRY' ENTERED AT 11:16:17 ON 06 AUG 2008
L29             STR L16

     FILE 'REGISTRY' ENTERED AT 11:16:57 ON 06 AUG 2008
L30           4 SEA SUB=L22 SSS SAM L29
                D SCAN
L31         110 SEA SUB=L22 SSS FUL L29
L32          61 SEA ABB=ON  PLU=ON  L31 NOT 1-9/NR

     FILE 'HCAPLUS' ENTERED AT 11:18:36 ON 06 AUG 2008
L33       10769 SEA ABB=ON  PLU=ON  L26
L34          53 SEA ABB=ON  PLU=ON  L32
L35           1 SEA ABB=ON  PLU=ON  L33 AND L34
                D SCAN
L36       13366 SEA ABB=ON  PLU=ON  L27
L37        3038 SEA ABB=ON  PLU=ON  L33 AND L36
L38           1 SEA ABB=ON  PLU=ON  L37 AND L34
L39       24100 SEA ABB=ON  PLU=ON  L13
L40        5994 SEA ABB=ON  PLU=ON  L33 AND L39
                D QUE
L41        1243 SEA ABB=ON  PLU=ON  L12
L42          13 SEA ABB=ON  PLU=ON  L40 AND L41

     FILE 'REGISTRY' ENTERED AT 11:23:50 ON 06 AUG 2008
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                D SCAN L13
L43             2 SEA ABB=ON  PLU=ON  L2 AND ?DIOXOLAN?/CNS

     FILE 'REGISTRY' ENTERED AT 11:24:35 ON 06 AUG 2008

     FILE 'HCAPLUS' ENTERED AT 11:24:56 ON 06 AUG 2008
L44         18380 SEA ABB=ON  PLU=ON  L43
L45          5828 SEA ABB=ON  PLU=ON  L33 AND L44
L46            13 SEA ABB=ON  PLU=ON  L45 AND (L34 OR L41 OR L32)
L47            13 SEA ABB=ON  PLU=ON  L35 OR L38 OR L42 OR L46
L48               QUE ABB=ON  PLU=ON  ELECTROLYT?
L49            13 SEA ABB=ON  PLU=ON  L47 AND L48
L50               QUE ABB=ON  PLU=ON  BATTER?
L51            12 SEA ABB=ON  PLU=ON  L49 AND L50
L52            13 SEA ABB=ON  PLU=ON  L49 OR L51
                  SAV TEMP L52 WEI268HCP/A
                  D QUE L52
                  D L52 1-13 IBIB ED ABS HITSTR HITIND
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